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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 09/342,729  | 06/29/1999  | NOBUO NAKAMURA       | 0039-7260-2S        | 7005             |
| 22850   | 7590        | 04/22/2005           | EXAMINER            |                  |
| OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.<br>1940 DUKE STREET<br>ALEXANDRIA, VA 22314 |             |                      | GENCO, BRIAN C      |                  |
|   |             |                      | ART UNIT            | PAPER NUMBER     |
|   |             |                      | 2615                |                  |

DATE MAILED: 04/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Supplemental  
Notice of Allowability**

Application No.

09/342,729

Examiner

Brian C Genco

Applicant(s)

NAKAMURA ET AL.

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**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the telephone conversation with Michael Monaco on April 8, 2005.
2. ☒ The allowed claim(s) is/are 2-4 and 13.
3. ☒ The drawings filed on 29 June 1999 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date 4/8/05
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

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An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Michael Monaco on April 8, 2005.

The application has been amended as follows:

Claim 2 is amended as follows:

An image pickup apparatus comprising:

an array of unit cells arranged in rows and columns, each unit cell having

a light-receiving device configured to receive light and generate an electric charge corresponding to the light,

a charge-accumulating section configured to accumulate the electric charge generated by the light-receiving device,

a transfer device configured to transfer the electric charge from the light-receiving device to the charge-accumulating section, a charge-limiting device configured to limit the electric charge accumulated in the charge-accumulating section, and

an amplifying device configured to amplify a voltage signal corresponding to the electric charge in the charge-accumulating section, wherein

the electric charge generated in the light-receiving device is accumulated in the light-receiving device when an OFF voltage is applied to the transfer device, and the electric charge generated and accumulated in the light-receiving device is transferred

from the light-receiving device to the charge-accumulating section when an ON voltage is applied to the transfer device;

a plurality of vertical signal-lines extending along the columns of unit cells, respectively, each configured to receive the amplified voltage signal amplified by the amplifying device of any unit cell of the associated column; and

a control circuit configured to control each of the unit cells, to cause the charge-limiting device to limit the electric charge generated by the light-receiving device during a first period and transferred to the charge-accumulating section through the transfer device, to cause the charge-accumulating section to hold the electric charge limited by the charge-limiting device, and to add to the electric charge held in the charge-accumulating section, an electric charge generated by the light-receiving device during a second period following the first period and transferred to the charge-accumulating section through the transfer device wherein

the control circuit controls each of the unit cells of the same row such that the charge-limiting device limits the charge accumulated in the charge-accumulating section, during a horizontal blanking period, and the charge transferred to the charge-accumulating section is added to the charge accumulated in the charge-accumulating section, during a different horizontal blanking period.

Claim 3 is amended as follows:

An image pickup apparatus comprising:

an array of unit cells arranged in rows and columns, each unit cell having

a light-receiving device configured to receive light and generate an electric charge corresponding to the light,

a charge-accumulating section configured to accumulate the electric charge generated by the light-receiving device,

a transfer device configured to transfer the electric charge from the light-receiving device to the charge-accumulating section, a charge-limiting device configured to limit the electric charge accumulated in the charge-accumulating section, and

an amplifying device configured to amplify a voltage signal corresponding to the electric charge in the charge-accumulating section, wherein

the electric charge generated in the light-receiving device is accumulated in the light-receiving device when an OFF voltage is applied to the transfer device, and the electric charge generated and accumulated in the light-receiving device is transferred from the light-receiving device to the charge-accumulating section when an ON voltage is applied to the transfer device;

a plurality of vertical signal-lines extending along the columns of unit cells, respectively, each configured to receive the amplified voltage signal amplified by the amplifying device of any unit cell of the associated column; and

a control circuit configured to control each of the unit cells, to cause the charge-limiting device to limit the electric charge generated by the light-receiving device during a first period and transferred to the charge-accumulating section through the transfer device, to cause the charge-accumulating section to hold the electric charge limited by the charge-limiting device, and to add to the electric charge held in the charge-accumulating

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section, an electric charge generated by the light-receiving device during a second period following the first period and transferred to the charge-accumulating section through the transfer device wherein

the control circuit controls the unit cells such that the charge-limiting device limits the charge to be accumulated in the charge-accumulating section and the charge transferred to the charge-accumulating section is added to the charge accumulated in the charge-accumulating section, during the same vertical blanking period in all cell units.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian C. Genco who can be reached by phone at 571-272-7364 or by fax at 571-273-7364. The examiner can normally be reached on Monday thru Friday 8:30am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Groody can be reached at 571-272-7950. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the customer service office whose telephone number is 571-272-2600.


Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Brian C Genco  
Examiner  
Art Unit 2615

April 8, 2005



TUAN HO  
PRIMARY EXAMINER